**DEPARTMENT OF UTILITIES**
8500 Public Works Drive
P.O. Box 560
Manassas, VA 20110

Allen P. Todd, P.E.
Director of Utilities

Telephone: (703)257-8351
Facsimile: (703)257-8361

April 15, 2004

James R. Burtle
Chief, Experimental Licensing Branch
Federal Communications Commission
Gettysburg, PA 17325

Dear Mr. Burtle:

Thank you for forwarding to the City letters from Ms. Ruth Frock, President, Ole Virginia Hams (OVH) Amateur Radio Club Inc. and from Amateur Radio Operator, Mr. George V. Tarnovsky, who is also a member of the OVH Club. Both letters expressed their concerns regarding possible radio interference caused by Broadband over Power Line (BPL) deployment in Manassas.

Before responding to their concerns, let me first describe the deployment of BPL in the City of Manassas. In October, 2001, The City of Manassas was awarded a grant by the American Public Power Association (APPA) for initiation of a pilot project to evaluate the delivery of high speed internet service through the City's existing electric distribution system. During this project, the City utilized the existing fiber optic network and newly developed Broadband over Power Line (BPL) equipment provided by Main.net communications, to construct a communications network. The network delivered high-speed internet access to residential and commercial participants of the pilot. During the project, participants enjoyed the ease and flexibility of high-speed internet access through a modem plugged into any electric outlet in their home. Throughout the project, participants made favorable statements regarding their use of this new technology. The speed, portability, ease of installation, and reliability were welcomed features of the system to project participants.

Through the success of the pilot project, the City demonstrated the advantages and feasibility of using BPL technology for the delivery of broadband services. Likewise, Manassas citizens indicated their desire to utilize a new technology for accessing the internet. The knowledge and experience gained from the pilot, as well as the successful customer experience of the pilot participants, compelled the City to push forward with a full-scale deployment of BPL.

Today, the City of Manassas is only using BPL equipment provided by Main.net. Main.net's BPL technology has been tested by an A2LA accredited third party test laboratory which has determined that Main.net's devices comply with the FCC's rules for unlicensed equipment, which are designed to prevent interference to amateur radio operators and others.

The City of Manassas began commercial deployment of the BPL network in February 2004 and access to the internet is currently available to 2,000 homes, with another 1,000 homes scheduled by the end of April.

Mrs. Frock, as President of the OVH Amateur Radio Club, requested in her letter that a dialogue be established and that Mr. Bob Zaepfel be the point of contact for the OVH club. Mr. George Tarnovsky is also a member of the same club.

On March 23, 2004, a meeting with OVH members was held at the City of Manassas Public Works Facility. In attendance at this meeting were:

| | |
|---|---|
| City of Manassas: | Allen Todd, Director of Utilities<br>John Hewa, Assistant Director Electric Utilities |
| Main.net: | Joe Marsilii, CEO and President<br>Zack Burrows, Technician |
| OVH Club Members: | Bob Zaepfel<br>George Tarnovsky<br>Don Blasdell |

This meeting provided an opportunity for the amateur radio operators to discuss their concerns and to learn about the City's deployment of BPL. Discussions included a presentation of the Main.net BPL technology being used in Manassas, topology of the BPL network, a demonstration of how BPL modems can be programmed to filter sections of the radio spectrum, and a demonstration of how BPL equipment is installed on the Manassas power system.

Following that meeting, the City and the amateur radio operators agreed to meet again to visit specific BPL sites. Along the same lines of cooperation and understanding, the City agreed to have BPL installed at the home of Mr. Zaepfel. With BPL in his home, Mr. Zaepfel will be able to monitor the compatibility of BPL equipment operating in close proximity to his amateur radio station.

On April 6, 2004 the City met again with amateur radio operators Zaepfel, Tarnovsky, and Blasdell for the purpose of visiting BPL sites in the City where radio noise had been previously identified by operators. The first site visited was an overhead BPL installation on Weir Street. After verifying that the BPL repeaters were operating, the club members, using their monitoring equipment, were unable to identify any interference in the amateur bands being caused by BPL installation.

Next, we visited another overhead installation (a pole mounted BPL repeater) on Signal Hill Road. At this location, mild noise could be periodically detected using their intricate monitoring equipment. The mobile ham radio in my car was not sensitive enough to detect any interference. As the vehicle with the radio club monitoring equipment moved away from the pole, any noise that could be detected was attenuated within approximately 60 – 70 feet.

In the near future, we are planning another site visit with OVH club members to monitor operation of BPL equipment at an underground installation in the Wellington area. We are confident that with continued dialogue, the City of Manassas and Ole Virginia Hams Amateur Radio Club, along with other amateur radio operators, can come to an amicable resolution of their concerns. Please be assured, the City of Manassas is committed to operating the BPL system in a way that demonstrates our sensitivity to all spectrum users. We will continue to monitor for possible interference, and in the event that interference does become a problem, we will work to mitigate the impact. I would like to commend the OVH Radio Club for their diligence in ensuring that amateur radio is protected, and remains a viable and effective means of communication for the future. As a ham radio operator of 46 years (W4VUB) I have certainly benefited from my avocation and I am well aware of the important role that amateur radio plays in the community.

With the application of BPL technology and successful deployment of BPL to the citizens of Manassas we would like to invite FCC representatives to visit Manassas and monitor the operation of the BPL network. Please feel free to contact me if you require additional information or if I can be of further assistance.

Sincerely,

Allen P. Todd, P.E.
Director of Utilities

Cc: Ruth Frock, President – OVH Amateur Radio Club
Bob Zaepfel – OVH Amateur Radio Club
George Tarnovsky – OVH Amateur Radio Club
Don Blasdell – OVH Amateur Radio Club

## Alan Stillwell

**From:** Jim Spencer [jlscr@mchsi.com]
**Sent:** Monday, April 05, 2004 9:57 PM
**To:** Alan Stillwell; Riley Hollingsworth; James Burtle
**Subject:** Fw: Noise Status-March 2004

I was asked to forward this to you by Ed Hare. It the normal monthly Noise Report for March that I prepare to track the progress of Alliant Energy in locating and repairing power line noise. This month in addition to the power line noise I encountered significant interference from the BPL test that was started in my neighborhood on March 30th.

This week I plan to do a more complete spectrum analysis of the BPL interference and I will forward those to you when completed.

Jim Spencer
3712 Tanager Dr. NE
Cedar Rapids, Iowa 52402
319-393-7353

----- Original Message -----
From: "Jim Spencer" <jlscr@mchsi.com>
To: "Ed Hare W1RFI" <W1RFI@arrl.org>; "Mike Gruber" <mgruber@arrl.org>
Cc: "Wade Walstrom" <Walstrom@mchsi.com>; "Pat Swift" <PatSwift@alliantenergy.com>; "Jerry Koppenhaver" <JerryKoppenhaver@alliantenergy.com>
Sent: Wednesday, March 31, 2004 3:56 PM
Subject: Noise Status-March 2004

> A summary from my daily readings on 40 meters for March follows:
>
> 23 days S9
> 2 days S8
> 4 day S7
> 2 day S6
>
> All of the S6 and S7 readings were during a rain or just after a rain while
> the hardware was still wet. During those "wet" times the noise on 10 and
15
> meters would often go to S0.
>
> The spacer "stars" reported last time have all been replaced and it appears
> that the noise to West has dropped to below levels from the East.
> That effort has helped.
>
> The rain has made chasing noise difficult because is seems to coincide with
> opportunities to chase. When Jerry was here this week a very loud
> arc-sounding noise was occurring. We managed to locate the general
> area just East of me on Wenig Rd. but as Jerry tried to use the beam
> the noise disappeared. I located it in the same area yesterday but
> without proper equipment it was not possible to pinpoint the source.
>
> I also located an extremely loud noise at the switch by the Ross
> residence on Wenig, which is due South of me and along the same lines
> that go by my house. This switch has caused intermittent noise for
> years.
>
> When I checked the noise yesterday afternoon I had trouble finding a
> clear frequency on 21 MHz to take a noise reading. This morning I

> noted the
same
> problem and similar problems on 14 and 28 MHz. At about 11:30 AM this
> morning I took more time and scanned all amateur bands. It was
> terrible with birds (spurious signals) all over the place. These were
> as loud as
10
> db over S9 in places and they rendered 21 and 28 MHz useless and could
> be
a
> big problem on the other bands depending up frequency. I suspected
> BPL could be the culprit so I checked some actual BPL recordings on
> the ARRL
web
> site and as far as I'm concerned, it matches. I talked to the Alliant
crew
> and engineer, Sean Smith, and the representative from Amperion as they
were
> installing another BPL just West of me. I reported my observations
> and invited them to come and listen at my station. They did not have
> time but
a
> sked me to write down a scan of the bands and give it to them and I
> agreed to do that. I will try to observe, take readings and make my
> station available to Alliant the Amperion. They said a commercial
> scan is planned for April 12.
>
> 73, Jim WOSR
>
>
>
>
>
>
>
>
>

**Alan Stillwell**

**From:** Jim Spencer [jlscr@mchsi.com]
**Sent:** Thursday, April 22, 2004 10:40 AM
**To:** Tim VanWeelden
**Cc:** Riley Hollingsworth; Alan Stillwell; Anh Wride; James Burtle; Ed Hare W1RFI
**Subject:** Harmful Interference from BPL

Tim VanWeelden
Alliant Energy
1001 Shaver Rd. NE
Cedar Rapids, IA 52402

Dear Tim:

Thank you for allowing me to participate in your test of the Amperion BPL system in NE Cedar Rapids. My location, station quality and experience as an electrical engineer for over 40 years and Amateur Radio operator for over 50 years has yielded very worthwhile information about the effects of a possible BPL deployment on other services using the High Frequency bands.

Your BPL installation is causing extremely harmful interference to my station on most amateur frequency bands and it makes normal communication impossible. BPL, a Part 15 device as defined in the FCC Regulations, is prohibited from interfering with other services licensed by the FCC. Now that your tests are completed, I ask that you correct the interference immediately or shut down the BPL system per Part 15 of the Regulations.

I started receiving serious levels of interference on March 30 when your BPL equipment was first installed. It has continued 24 hours a day since the 30th except for a few test shut downs. I have confirmed the interfering frequencies with Tom Luecke of Amperion. I've also demonstrated the problem to Alliant employees. Alliant and the Nebraska Center for Excellence in Electronics visited my station on April to record BPL levels. They were able to observe the strong levels of interference and to note that when the BPL was shut down, all of this interference disappeared.

The Amperion representative has provided me with a listing of the amateur frequency bands which he had notched when the system was installed. This includes the 20, 17, 15, 12 and 10 meter bands. However, I'm still receiving significant interference in those amateur bands and additionally in the 30 and 40 meter bands. The notching is ineffective in alleviating the harmful interference that I'm experiencing.

I again offer to demonstrate to any in Alliant management, or other Alliant employees, the extreme interference caused by BPL to my licensed Amateur Radio operation. I've also offered to help run susceptibility tests to determine what impact operation of a licensed Amateur Radio station might have on a customer using BPL for an Internet connection.

Below, in a standardized format prepared by the American Radio Relay League, is a report on the harmful interference I am receiving . I can supply more details on the interference or actual recordings if that would be helpful.

Sincerely,

James L. Spencer

## Report of Harmful Interference from a Broadband Over Power Line Trial

Name of complainant: James L. Spencer

Call sign : W0SR

Station location: 3712 Tanager Dr. NE, Cedar Rapids, Iowa 52402

Telephone: 319-393-7353

Email: jlscr2@yahoo.com

Description of Interference: Extremely strong carriers with some modulation occurring throughout the amateur bands, often occurring less than every 2 KHz. The frequencies shift some with time but are generally on the low end of the 10 meter band, throughout the 12, 15, 17 and 40 meter bands. Interference can on the 20 and 30 meter bands seems to change although at times has been extremely strong.

Description of station: Icom IC-765, Icom IC-735, Kenwood TL-922A Power Amplifier (1000 watts), Alpha 76 PA Power Amplifier (1500 watts)

Receiver(s) affected: IC-765, IC-735

Antenna type: 1. TH7DXX rotary beam; 2. Inverted Vee's for 75 and 40 meters; 3. HF-2V Vertical for 80 and 40 meters; 4. rotary dipole for 30, 17 and 12 meters; 5. Inverted L for 160 meters

Antenna location: Tower is located about 80 feet from street in backyard.

Distance of antenna from own house (feet): 4 feet

Distance of antenna from neighboring houses (feet): approximately 30 feet

Distance of antenna from power distribution line or equipment: Antenna is about 50 feet from distribution line, about 500 feet from nearest BPL unit.

## Log of interference

I have picked one typical day for this report although I've recorded information for many days. This interference is on full time as I stated above.

Date : 4-17-04

Time 10:50 to 11:22 AM

The interference consists of carriers spaced approximately every 2 KHz. as noted above.

Frequency: 40 meters (7.0 to 7.3 MHz) Mode: CW/SSB Interfering Signal Strength: S8 to S9

Frequency: 30 meters (10.1 to 10.150 MHz) Mode: CW Interfering Signal Strength: S6 to S8

Frequency: 20 meters (14.0 to 14.350 MHz) Mode: CW/SSB Interfering Signal Strength: S5 to S7

Frequency: 17 meters (18.068 to 18.168 MHz) Mode: CW/SSB Interfering Signal Strength: S9

Frequency: 15 meters (21.0 to 21.450 MHz) Mode: CW/SSB Interfering signal Strength: S8 to S9

Frequency: 12 meters (24.890 to 24.990 MHz) Mode: CW/SSB Interfering Signal Strength: S7 to S9

Frequnceny: 10 meters (28.0 to 28.4 MHz) Mode: CW/SSB Interfering Signal Strength: S7 to S8

**Alan Stillwell**

**From:** Rick Sellers [memorick@kmryradio.com]
**Sent:** Monday, May 17, 2004 4:26 PM
**To:** Alan Stillwell
**Subject:** BPL interferrence in Cedar Rapids, Iowa

Below is copy of a letter sent to Cedar Rapids, Iowa electric utility Alliant Energy concerning BPL interferrence being heard on amateur radio bands...thanks for your attention and involvement in this matter.

Rick Sellers

May 10, 2004

Mr. Tim VanWeelden
Alliant Energy
1001 Shaver Rd. NE
Cedar Rapids, IA 52402
E-mail: timvanweelden@alliantenergy.com

Dear Mr. VanWeelden:

I am writing to inform you that your BPL test installation on Glass Rd. NE in Cedar Rapids is causing harmful interference to my licensed Amateur Radio station. This interference is found on 40, 30, 17, 15, 12 and 10 meter amateur bands and makes normal communications on these frequencies difficult. The harmful interference started in late March or early April and continues to this day.

BPL is classified as an intentional emitter in Part 15 of the FCC Regulations and is prohibited from interfering with other FCC licensed services. As the operator of this BPL system it is Alliant Energy's responsibility (as outlined in Part 15 of the FCC Regulations), to eliminate the interference being caused to services licensed by the FCC, including the Amateur Radio service.

Therefore, I am requesting that Alliant Energy, as operator of this BPL system, eliminate the interference caused by the BPL system. If Alliant Energy is not able to eliminate this interference ~~at once~~, Alliant Energy should immediately shut down the BPL system.

The harmful interference to my station for a single day is documented in the attached report.

Yours truly,

Richard L. Sellers, WD0HGI
(and licensee of commercial AM Radio Station KMRY)
2900 Glass Road NE
Cedar Rapids, Iowa 52402
Email: r.sellers@kmryradio.com

Cc:

Federal Communications Technology
Office of Engineering and Technology
Attn: Anh Wride
Room 7-A825 Portals II
445 12th Street SW
Washington, DC 20024
Email: awride@fcc.gov

Federal Communications Commission
Attn: Alan R. Stillwell
Room 7-C210
445 12th Street SW
Washington, DC 20024
Email: astillwe@fcc.gov

Federal Communications Commission
Attn: Riley Hollingsworth
1270 Fairfield Road
Gettysburg, PA 17325
Email: rholling@fcc.gov

Federal Communications Commission
James R. Burtle
Chief, Experimental Licensing Branch
Room 7-A267
445 12th Street SW
Washington, DC 20024
E-mail: jburtle@fcc.gov

Ed Hare W1RFI
American Radio Relay League
225 Main Street
Newington, CT 06111
e-mail: ehare@arrl.org

Report of Harmful Interference from a Broadband Over Power Line Trial

Name of complainant: Richard L. Sellers

Call sign: WD0HGI

Station location: 2900 Glass NE, Cedar Rapids, Iowa 52402

Telephone: 319-393-0196

E-mail: r.sellers@KMRYRadio.com

Description of Interference: Closely spaced strong carriers with some modulation. These across wide portions of the affected amateur bands. Some carriers turn on and off.

Description of station: Icom IC-728 Transceiver, Nye-Viking Antenna coupler

Antenna type: All-band center-fed horizontal wire, 165 feet on a side. Approximately 35 feet in the air.

Antenna location: Antenna runs North-South from the front to the back of the lot.

Distance of antenna from own house (feet): The center of the antenna is directly over the house.

Distance of antenna from neighboring houses (feet): approximately 70 feet

Distance of antenna from power distribution line or equipment (feet): Perpendicular to and 65 feet from power line.

Log of interference

Date: 5-8-04

Time 5:00 to 5:50 PM

This interference consists of many closely spaced carriers.

Frequency: 40 meters (7.0 to 7.3 MHz) Mode: CW/SSB
Interfering Signal Strength: S7

Frequency: 30 meters (10.1 to 10.150 MHz) Mode: CW
Interfering Signal Strength: S7

Frequency: 20 meters (14.0 to 14.350 MHz) Mode: CW/SSB
Interfering Signal Strength: Others have reported interference on the 20 meter band. When I took the data on 5-8-04 there was an extremely loud noise which would mask any BPL interference.

Frequency: 17 meters (18.068 to 18.168 MHz) Mode: CW/SSB
Interfering Signal Strength: BPL signals at the S7 noise level

Frequency: 15 meters (21.0 to 21.450 MHz) Mode: CW/SSB

Interfering signal Strength: S6

Frequency: 12 meters (24.890 to 24.990 MHz) Mode: CW/SSB
Interfering Signal Strength: S9

Frequency: 10 meters (28.0 to 28.4 MHz) Mode: CW/SSB
Interfering Signal Strength: S3 to S4

May 10, 2004

Mr. Tim VanWeelden
Alliant Energy
1001 Shaver Rd. NE
Cedar Rapids, IA 52402
E-mail: timvanweelden@alliantenergy.com

Dear Mr. VanWeelden:

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Cc:

Federal Communications Technology

Office of Engineering and Technology
Attn: Anh Wride
Room 7-A825 Portals II
445 12th Street SW
Washington, DC 20024
Email: awride@fcc.gov

Federal Communications Commission
Attn: Alan R. Stillwell
Room 7-C210
445 12th Street SW
Washington, DC 20024
Email: astillwe@fcc.gov

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Attn: Riley Hollingsworth
1270 Fairfield Road
Gettysburg, PA 17325
Email: rholling@fcc.gov

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Interfering Signal Strength: S3 to S4

From the Desk of...

**Rick Sellers**

Mr. Burtle,

Per Riley Hollingsworth, I am sending you a ~~signed~~, 'snail mail' copy of my letter to Alliant Energy here in Cedar Rapids.

TR

1450 CBS RADIO KMRY

1957 Blairs Ferry Road NE
Cedar Rapids, IA 52402
319-393-1450

TO: JAMES BURTLE



**Jim Spencer**

**From:** "Jim Spencer" <jlscr@mchsi.com>
**To:** "James R. Burtle" <Jburtle@fcc.gov>; "Anh Wride" <Awride@fcc.gov>; "Alan R. Stillwell" <Astillwe@fcc.gov>; "Riley Hollingsworth" <rholling@fcc.gov>
**Sent:** Monday, May 17, 2004 9:46 AM
**Subject:** Response Requested

Dear FCC:

The message shown below was sent to you on March 22, 2004. I have not received a confirmation from anyone at the FCC. Did you receive it?

Have I sent it to the correct department within the FCC? If not, can you tell me who to contact and how to contact them?

The harmful interference continues 24-hours a day, seven days a week. FCC intervention, in accordance with Part 15, is obviously required. How do I go about getting action to be taken soon? The harmful interference makes communication on most amateur bands impossible, except with the strongest signals.

Your reply will be appreciated.

Sincerely,

James L. Spencer

James L. Spencer

LETTER SENT MARCH 22, 2004

Tim VanWeelden
Alliant Energy
1001 Shaver Rd. NE
Cedar Rapids, IA 52402

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equipment was first installed. It has continued 24 hours a day since the
30th except for a few test shut downs. I have confirmed the interfering
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Call sign : W0SR

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Telephone: 319-393-7353

Email: jlscr2@yahoo.com

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Amplifier (1000 watts), Alpha 76 PA Power Amplifier (1500 watts)

Receiver(s) affected: IC-765, IC-735

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Interfering
Signal Strength: S8 to S9

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Signal Strength: S6 to S8

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Signal Strength: S7 to S8

2 Tanager Dr. N.E.
Lapids, Iowa 52402 USA

PM
MAY 19
2004

To: James Burtle
Office of Engineering & Technology
FCC
Room 7-A267
445 12th St. SW
Washington, DC 20024

20554

RECEIVED & INSPECTED
JUN 17 2004
FCC MAILROOM

R. J. Hirvela
3613 Heatheridge Drive NE
Cedar Rapids, Iowa 52402



Mr. Tim VanWeelden
Alliant Energy
1001 Shaver Rd. NE
Cedar Rapids, IA 52402

May 27, 2004

Dear Mr. VanWeelden:

The purpose of this letter is to inform you that your BPL test installation near my home at 3613 Heatheridge Dr NE, on the corner with Glass Road, appears to cause considerable interference on the 15 Meter amateur radio service band.

On May 9, 2004, between 8 Pm and 9 PM, I measured and videotape recorded interference levels of approximately S-7 across the entire band. The interference appeared as a series of tones spaced a few kilohertz apart.

As I hold an FCC Advanced Class Amateur Radio Station License for this location, the BPL system clearly interferes with FCC licensed services. The enclosed report provides additional details.

If you require any additional information please contact me at 319-363-8437.

Thank you.

Sincerely,

Robert Hirvela

Cc:

Federal Communications Technology
Office of Engineering and Technology
Attn: Anh Wride
Room 7-A825 Portals II
445 12th Street SW
Washington, DC 20024

Report of Harmful Interference from a Broadband Over Power Line Trial

Name of Complainant: Robert J. Hirvela

Call Sign: AK0D

Station Location: 3613 Heatheridge Drive NE, Cedar Rapids, IA 52402

Telephone: 319-363-8437

E-Mail: rjhirvela@compuserve.com

Description of Interference: Series of modulated tones spaced a few kilohertz apart

Description of Station: Rockwell-Collins KWM-380 Transceiver

Antenna Type: 40 ft. Multi-band center-fed dipole (Alpha Delta Model DX-EE) Approximately 20 feet in the air

Antenna Location: Antenna runs approximately North-South at rear of house

Distance of antenna from own house (feet): Directly above

Distance of antenna from neighboring house (feet): Approximately 75 feet

Distance of antenna from power distribution line or equipment (feet): Perpendicular to and approximately 80 feet from the power line.

Log of Interference:

Date: May 9, 2004

Time: 8 PM to 9 PM

The interference consists of a series of modulated tones across the entire 15-meter band

Frequency: 21.0 to 21.450 MHZ

Interfering Signal Strength S-7